

Dryopteris goldiana (Hook.) Gray is seldom collected in Illinois, and apparently is very rare in the southern half of the state; the only previous collection is from Jackson County. I discovered clumps of this fern growing with *D. marginalis* in rocky woods at the base of a north-facing hill along Lusk Creek, SW $\frac{1}{4}$, S21, T12S, R6E, Pope County, on August 18, 1967 (*Schwegman 1367*, SIU).

I found *Ophioglossum engelmannii* Prantl, a fern of exposed limestone habitats, growing rather abundantly in limestone hill prairie on Millstone Knob, which is near Robbs, Pope County, on June 4, 1966 (*Schwegman 454*, SIU).

I want to thank Professor Robert H. Mohlenbrock of Southern Illinois University, whose encouragement and interest in my collecting helped make this paper possible.—JOHN SCHWEGMAN, *Mermet Wildlife Refuge, Belknap, Ill. 62908*.

786
A SPINY DENNSTAEDTIA FROM CENTRAL AMERICA.—During a course in tropical pteridophytes for the Organization for Tropical Studies last summer in Costa Rica, I found a new species of *Dennstaedtia* which is remarkable in having spiny stipes, rachises, and pinna axes, a condition found in no other New World species of the genus.

DENNSTAEDTIA **spinosa** Mickel, sp. nov.

Fronde fere 2 m longae, axibus spinulosis, spinulis usque ad 3 mm longis rectis vel paullo antrorsis; laminae quadripinnati-pinnatifidae; pinnae alternae, supra nitentes et fere glabrae, subtus hirsutae, pilis rectis hyalinis; venae apice tenues; indusia humilia lata plus minusve bivalvata, integra vel irregulariter dentata; sporae triletae, rugosae, rugis brevibus latis irregulariter coalescentibus.

Rhizomes creeping, clothed with black hairs; fronds nearly 2 m long; axes orange, spiny, the spines up to 3 mm long, straight or slightly antrorse; stipes ca. 1 m long, 1 cm thick; blades approx. 1 m long, 1 m broad, deltoid, quadripinnate-pinnatifid, lacy; pinnae alternate, short-petiolulate (to 12 mm); basal pinnules opposite, not or only slightly reduced, the larger 10–13 cm long, 2.5–3 cm broad; laminae hirsute beneath with straight, hyaline

hairs, shiny above and essentially glabrous; vein endings slender; sori small, ca. 0.6 mm broad; indusia entire to irregularly dentate, low, broader than high, more or less bivalvate; spores trilete, with short, broad, irregularly coalescing ridges, 27.0–32.5 μ in diameter.

✓**TYPE:** Costa Rica, Province of Puntarenas, Osa Peninsula, southwest of Rincón de Osa, in rain forest behind Tropical Science Center field station, ca. 50 m alt., *Mickel 2730* (US; isotypes ISC, LP, USJ).

PARATYPE: Honduras, in forest on ridge above Lancetilla, *Yuncker 4592* (US).

This new species closely resembles *D. cicutaria sensu lato* but can be distinguished readily by the spiny axes and finer dissection. *Dennstaedtia spinosa* has distinctive internal anatomy and spore morphology as well. The petiole trace of *D. cicutaria* is extremely corrugated on the abaxial arc and has much higher lateral bulges. The stipe bundles of *D. spinosa*, on the other hand, are smooth and uncorrugated on the abaxial side, and the lateral bulges are lower. The lateral grooves are so deep as to touch one another in the center of the stipe. In their rhizomes both species have dicyclic solenosteles, but those of *D. cicutaria* are dorsiventral with the ventral side slightly corrugated and those of *D. spinosa* are terete and uncorrugated. The spores also differ; those of *D. cicutaria* are verrucate, whereas those of *D. spinosa* have low, irregularly anastomosing ridges. Furthermore, the indusia of the new species are more regularly dentate than are those of *D. cicutaria*.

Although *D. cicutaria* occasionally has a few prickles on its axes and a few specimens, described as *D. decomposita*, are as dissected as *D. spinosa*, none has the regular and consistent spininess nor the anatomical and spore characteristics of *D. spinosa*. I have seen no Old World specimens of *Dennstaedtia* that closely approach the new species, and it seems clear that it belongs to the *D. cicutaria* complex.

JOHN T. MICKEL, *Department of Botany and Plant Pathology, Iowa State University, Ames, Iowa 50010.*